



UNIVERSITY OF  
**OXFORD**

# ***Studying Science Subjects at Oxford***



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# Overview

- subjects offered by science Divisions
  - application and offer data
  - making and assessing an application
  - interviews
- 
- this can only be a flavour of science subjects at Oxford: a wealth of information is available at [www.ox.ac.uk](http://www.ox.ac.uk)

# University of Oxford

- the University of Oxford is divided into four Divisions
  - Humanities
  - Mathematical, Physical and Life Sciences
  - Medical Sciences
  - Social Sciences
- MPLS and MSD both offer a collection of undergraduate courses
- courses are often joint offerings from different Departments within the Divisions

# A couple of key points

- the number of places available for different courses varies markedly
  - 200 for Chemistry
  - 20 for Computing Scienceand the popularity of courses varies too
- students need to research the courses offered. What they *think* a course might involve is not necessarily correct
- encourage them to consider alternatives

# Delivery of teaching

- the balance of teaching methods will vary between courses, but all employ a mixture of
  - lectures
  - seminars
  - classes
  - practical work (with projects of varying length in the Finals course)
- supplemented by tutorials
- all courses start with a core syllabus and allow increasing specialisation after year 1
- students need to consider how much flexibility of choice they would like (need) in their course

# MPLS subjects

- Biological Sciences
- Chemistry
- Computer Science
- Earth Sciences
- Engineering Science (and EEM)
- Human Sciences
- Materials Science (and MEM)
- Mathematics (and joint schools)
- Physics

# Biological Sciences

- 3 year course, leading to BA
- around 100 places
- joint offering by Departments of Plant Sciences and Zoology
- Wide ranging: from genes to ecology
- Fieldwork and Research project
- many graduates progress to further study or to industry/scientific sector
- alternatives: Biochemistry, Biomedical Sciences, Human Sciences

# Chemistry

- 4 year course, leading to MChem
- around 200 places
- Department of Chemistry largest in western world
- foundation in chemistry, becoming increasingly specialised
- fourth year devoted to research project
- over half of graduates undertake further study; many enter industry and consulting
- alternatives: Biochemistry, Biomedical Sciences



# Computer Science

- 3 year course, leading to BA
- or*
- 4 year course, leading to MCompSci  
(decision on-course)
  - around 20 places
  - core first year, then option-based
  - one-third of years 3 and 4 devoted to a project
  - graduates often become programmers or work in publishing/finance
  - alternatives: Mathematics

# Earth Sciences (Geology)

- 3 year course - Geology - leading to BA
- or*
- 4 year course - Earth Sciences - MEarthSci  
(different course codes: advised to apply for 4 year course)
- around 30 places
- extensive field work from the start; projects in years 3 and 4
- graduates work in energy and environmental sectors
- alternatives: Geography, Materials Science, Physics

# Engineering Science

- 4 year course, leading to MEng
- around 140 places
- associated course: EEM: around 15 places
- core material covered in first two years, then specialisation
- five options in year 3, major project in year 4 (EEM diverges, offers six-month placement)
- many graduates become professional engineers, but others work in industry or finance (EEM breeds consultants)
- alternatives: Materials Science, Physics

# Human Sciences

- 3 year course, leading to BA
- around 30 places
- often misunderstood: addresses the biological, social and cultural aspects of human life
- multi-disciplinary, delivered by different Departments spread across both Divisions
- the breadth of third year options reflects this
- many graduates undertake academic and professional training (Medicine, sociology), or work in government
- alternatives: Geography, Experimental Psychology, Earth Sciences

# Materials Science

- 4 year course, leading to MEng
- around 30 places
- associated course: MEM (around 5 places); transfer from Materials possible at the end of year 1
- foundations in physics and chemistry
- delivered by Departments of Materials and Economics and the Said Business School
- entrepreneurship course, industrial placement
- many graduates work in manufacturing industry (MEM graduates enter technology of financial sectors)
- alternatives: Mathematics

# Mathematics

- 3 year course, leading to BA
- or*
- 4 year course, leading to MMath  
(decision on-course)
- around 170 places
- associated courses: Mathematics and
  - Computer Science (MMathCompSci; 20 places)
  - Philosophy (MMathPhil; 20 places)
  - Statistics (MMath; 25 places)
- core first year, then increasingly varied choices
- graduates are consultants, auditors, financial analysts
- alternatives: Computing Science

# Physics

- 3 year course, leading to BA

*or*

- 4 year course, leading to MPhys

(decision at application: different course codes)

- around 170 places
- associated course: Physics and Philosophy (MPhysPhil; 15 places)
- first year relies heavily on mathematics, second year introduces mainstream topics. One-term project in year 4
- many graduates undertake further study; some enter R&D or manufacturing
- alternatives: Earth Sciences, Materials Science

# MSD subjects

- Biochemistry
- Biomedical Sciences
- Experimental Psychology (and Psychology and Philosophy)
- Medicine



# Biochemistry

- 4 year course, leading to MBiochem
- around 100 places
- first three years core, specialisation and two-term project in year 4
- over half of graduates undertake further study/research; others work in biotechnology, pharmaceuticals
- alternatives: Biological Sciences, Biomedical Sciences, Chemistry, Human Sciences

# Biomedical Sciences

- the new kid on the block
- 3 year course, leading to BA
- two outcomes (one code)
  - Cell and Systems Biology
  - Neuroscience
- around 40 places
- core first year, then complete choice
- anticipated destinations: research, pharmaceuticals, Medicine
- alternatives: Biochemistry, Biological Sciences, Medicine

# Experimental Psychology

- 3 year course, leading to BA
- around 50 places
- associated subject: Psychology and Philosophy (25 places)
- some choice in year 1, a core second year, specialisation and project in year 3
- graduates become professional psychologists (degree is accredited) or enter teaching or research
- alternatives: Human Sciences

# Medicine

- 3 + 3 year course, leading to BA and BM
- around 150 places
- separate application process for clinical school
- first two years of pre-clinical course are core medical training; third year allows specialisation. Clinical course provides foundation year 1, then rotations around specialities
- high number of graduates become academic clinicians
- alternatives: Biological Sciences, Biomedical Sciences, Human Sciences

# Application data

	Applications	Offers	% success
Biochemistry	391	104	26.60
Biological Sciences	399	114	28.57
Biomedical Sciences	204	35	17.16
Chemistry	560	201	35.89
Computer Science	151	28	18.54
Earth Sciences	146	37	25.34
Engineering Science	820	170	20.73
EEM	131	16	12.21
Experimental Psychology	262	52	19.85
Human Sciences	167	33	19.76
Materials Science (inc. MEM)	106	37	34.91
Mathematics	1133	186	16.42
Mathematics and Computer Science	99	29	29.29
Mathematics & Statistics	209	32	15.31
Medicine	1487	155	10.42
Physics	893	176	19.71
Psychology & Philosophy	139	29	20.86
	<b>7297</b>	<b>1434</b>	<b>19.65</b>

# Application data

	All applications	EU applications		International applications	
		Total	%	Total	%
Biochemistry	391	49	12.53	80	20.46
Biological Sciences	399	24	6.02	59	14.79
Biomedical Sciences	204	27	13.24	48	23.53
Chemistry	560	41	7.32	82	14.64
Computer Science	151	22	14.57	29	19.21
Earth Sciences	146	11	7.53	11	7.53
Engineering Science	820	75	9.15	324	39.51
EEM	131	43	32.82	70	53.44
Experimental Psychology	262	30	11.45	47	17.94
Human Sciences	167	23	13.77	46	27.54
Materials Science (inc. MEM)	106	9	8.49	48	45.28
Mathematics	1133	48	4.24	194	17.12
Mathematics and Computer Science	99	26	26.26	21	21.21
Mathematics and Statistics	209	11	5.26	136	65.07
Medicine	1487	209	14.06	187	12.58
Physics	893	63	7.05	69	7.73
Psychology and Philosophy	139	31	22.30	37	26.62

# Shortlisting

	2009
	Shortlisted (%)
<b>SCIENCES</b>	
Biochemistry	96.8
Biological Sciences	91.3
Chemistry	96.0
Computer Science	44.0
Engineering Science	79.2
EEM	74.6
Experimental Psychology	80.7
Geology	98.6
Human Sciences	94.6
Materials Science (inc MEM)	80.0
Mathematics	65.3
Mathematics & Statistics	69.9
Mathematics & Computer Science	69.2
Medicine	36.8
Physics	55.7
Physiological Sciences	87.3
PPP	73.7
<b>SCIENCE OVERALL</b>	<b>67.0</b>

# So what are tutors looking for?

- obviously each course has its own set of desired attributes
- for every course, published selection criteria are readily available
- recurring themes are apparent
  - motivation; enthusiasm
  - an informed view and insight into the subject
  - academic ability and potential
  - analytical skills; a critical approach
  - initiative



# The evidence

- UCAS form
  - academic record
  - personal statement
  - reference
- tests
- submitted written work
- interview

# Academic record

- the bulk of Oxford's applicants apply with A levels
- that doesn't mean that we are not well-placed to assess academic ability - and *potential* - from other qualifications
- we have clear guidelines as to what grades are required to make a competitive application
- courses specify compulsory subjects (or combinations of subjects) at A level or equivalent
- it is important that students check that their subjects and (predicted) grades are appropriate

Please see also:

» [English language requirements](#)






### United Kingdom

<b>A-levels</b>	Conditional offers for students studying A-levels range between A*A*A and AAA depending on the subject.
<b>Pre-U</b>	Conditional offers are likely to vary between D2, D2, D3 and D3, D3, D3 depending on the subject. D2 is considered to be equivalent to an A* grade at A-level and D3 to an A grade.
<b>Scottish Highers</b>	AAAAB or AAAAA in Scottish Highers, usually supplemented by two or more Advanced Highers. Offers made to candidates on the basis of the Advanced Higher subjects are likely to be set at AA for two subjects, and AAB for three subjects.
<b>Welsh Baccalaureate</b>	Advanced Diploma with two A grades at A-level alongside the Core Certificate at Level 3.

### Other qualifications

<b>International Baccalaureate</b>	A total score of at least 38 points including core points, with 6s and 7s in subjects taken at the Higher level.
<b>American education system</b>	SAT Reasoning Test with at least 1,400 in Critical Reading and Mathematics and preferably also 700 or more in Writing, giving a combined score of at least 2,100 <b>OR</b> ACT with a score of at least 32 out of 36.  <b>AND</b>  Grade 5 in three or more Advanced Placement Tests in appropriate subjects <b>OR</b> SAT Subject Tests in three appropriate subjects at 700 or better.
<b>European Baccalaureate</b>	An average of 85% or above, with scores of between 8 and 9 in specified subjects.

### European Union

 <b>Austria</b>	Reifeprüfungszeugnis/Maturazeugnis with scores of 1 (sehr gut) in the majority of subjects taken.
 <b>Belgium</b>	Diploma van Hoger Secundair Onderwijs, Certificat d'Enseignement Secondaire Supérieur or Abschlusszeugnis der Oberstufe des Sekundarunterrichts with an overall average score of at least 8. Scores of 9 may be required in particular subjects.
 <b>Bulgaria</b>	Diploma Za Sredno Obrazovanie with overall scores of 6.
 <b>Cyprus</b>	Apolytirion with an average of 19 / 20 points <b>and</b> normally 2 or more A-levels at grade A.
 <b>Czech Republic</b>	Maturitní Zkouška / Maturita with scores of 1 (výborný) in the majority of subjects taken.

# Personal statement

- the personal statement is used in both shortlisting and selection: it is often the springboard for interview discussion
- applicants need to address
  - why they have chosen the course
  - what particular interests they have in the subject (and why)
  - what steps they have taken to inform themselves: placements
  - their extra-curricular activities
  - any other *relevant* information
  - the bulk of the content should be academic-related
- it is vital that they convey that they are applying for reasons other than expectation on someone else's part

# Reference

- we read these very carefully and take note of their contents
- we appreciate your insight into applicant's strengths (and weaknesses)
  - we pick these up at interview and through admissions tests: confirmation from referees helps us to have confidence in our decisions
- putting the applicant's ability and track-record into context is very helpful for us
  - especially when the applicant has succeeded against the odds

# Admissions tests

- examine the skills needed for a subject and probe potential of an applicant; give an objective basis for comparison of candidates from different backgrounds, and those from different countries
- many taken in schools, other exam centres before interview (early November)
  - some managed externally (Cambridge Assessment) and common to several universities
  - may require separate registration/fee
  - increasingly hard line taken with applicants who fail to sit this type of test
- some taken at interview

# Generalising: skills tested

- knowledge \*
- comprehension
- interpretation
- analysis
- synthesis
- deduction
- inference
- depth
- curiosity



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## Admissions

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## Specimens of written tests



Several subjects require candidates to take written tests, as listed below. You may need to register separately for these tests, so please check the requirements for your course carefully on the How to Apply tab of the individual [course page](#).

### ✦ Classics:

✦ Language Aptitude test (61 kb)

✦ A level standard Latin (14 kb)

✦ A level standard Greek (61 kb)

✦ Computer Science test paper is the same as for Mathematics below

✦ Economics and Management: candidates will sit the Thinking Skills Assessment: see the test website.

✦ English: see English Literature Aptitude Test (ELAT) website

✦ Fine Art (39 kb)

✦ History (38 kb)

✦ History and Economics (14 kb)

✦ Law: see the Law National Admissions Test (LNAT) website

✦ Mathematics (183 kb)

✦ Medicine: see the Biomedical Admissions Test (BMAT) website



# Admissions tests

- Relevant tests (all pre-interview)
  - Biomedical Admissions Test (BMAT)
    - Biomedical Sciences, Medicine
  - Mathematics Aptitude Test (MAT)
    - Computing Science, Mathematics courses
  - Physics Aptitude Test (PAT)
    - Physics courses
  - Thinking Skills Assessment (TSA)
    - Psychology courses

# How are marks used?

- marks are judged against published admissions criteria
- they influence pre-selection (shortlisting)
  - especially Medicine
- they identify potential areas of weakness that may help shape the interview
- they can be used, along with exam record and interview performance in an algorithm to rank applicants

# Interviews

- applicant plus two college tutors
- departments review information on all candidates and the colleges collaborate to ensure the best candidates get offers
- typically two interviews with two different pairs of tutors from the college of first choice and one or more interviews at another college
- interviews last 20-40 minutes
- interviews test an applicant's ability to think: 'mock tutorials'

# Common misconceptions

- there are trick questions
- it's a test of knowledge
- everyone gets the same questions
- wrong answers are always a bad thing
- you will know how it's gone
- one bad interview and it's all over
- it's an ordeal

# Types of question

- 'warm-up' questions
- questions based on the personal statement
  - reading
  - projects
  - experience: placements
  - interests
- scientific problem questions
- current affairs



